

leaders must understand that they are responsible for the security of the nation and its people, a sacred trust that separates our profession from other walks of life.

We must take care of our soldiers and treat them with the dignity and respect they deserve. And since more than half of them are married, we must also be sensitive to the needs of their families. Those families must be made to feel they are an important part of the total Army team. Programs such as the Army Communities of Excellence have improved both the participation and the pride of Army families as they have joined together to improve their quality of life. We must continue such efforts and look for other opportunities to make the Army a great place to be.

Above all, we must set the example for our young leaders and soldiers. As General Maxwell Taylor once said, "The badge of rank we wear on our shoulders is a badge of servitude, servitude to our

soldiers." A leader must accept the responsibility of being a role model 24 hours a day, seven days a week. And always, a leader's personal integrity must be beyond reproach. In short, a leader must be able to look his soldiers in the eye and say with confidence, "Follow me; do as I do."

Finally, professionalism requires commitment. Our nation asks much of its military leaders. It asks that we live up to a higher moral standard than that of the society we are sworn to protect. It asks that we endure the hardships of isolated posts, family separations, and sometimes onerous duty. It asks that we undergo tough, realistic training. And it asks that we be prepared to make the ultimate commitment—to risk our very lives in the defense of the nation.

Ours is a special calling. We are entrusted with an important responsibility—the protection of our great nation. As we pass through a period of uncertainty, and as you address the concerns of the

soldiers you lead, do not let them forget that the work they do is vital to the future of our great nation, and to peace and democracy around the world.

Our soldiers should take enormous pride in the contribution they are making to the preservation of the ideals upon which this nation was founded. To people all over the world—to those who have freedom and to those who hope for it—the U.S. soldier embodies the ideals and principles of individual liberty for which this country stands.

We can never relax our efforts to maintain a trained and ready Army to support and advance those ideals and principles. We have a sacred duty to the men and women we lead, to the United States, and to freedom everywhere. And in this task, we must not—and shall not—fail.



Tanks with Infantry, Part 1

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EDITOR'S NOTE: In this, the first of two articles on the employment of tanks with infantry, the authors first give a historical perspective on the general subject. Then they offer their thoughts on what tanks can do for infantry units and on what the employment of tanks can cost those units—particularly light infantry units—in terms of logistics, speed, mobility, and stealth.

In the second article, the authors will give specific examples of likely missions and their thoughts on what tactics, techniques, and procedures might be em-

ployed in those missions.

They feel that while members of light infantry units might benefit the most from their articles, mechanized infantrymen can also learn something from them.

One of the primary roles of armor has been the task of supporting infantry. Indeed, the very genesis of the tank came from an effort to find a way to break the trench warfare deadlock in World War I. The initial research, which later resulted in the first tanks, focused on find-

ing a machine that could cross deep and wide trenches while simultaneously suppressing the enemy force occupying its trench lines, especially its machinegun crews. Thus, the original purpose of the tank was to enable the infantry to close with the enemy.

Along with the development of their blitzkrieg concepts, German military leaders between the wars recognized the parallel need for direct gunfire support for their infantry. Erich von Manstein, then a colonel (who also authored the plan for the 1940 invasion of France us-

ing massed armored formations), proposed that each infantry battalion have an organic assault gun battalion. The *Sturmartillerie* (assault artillery) was born.

Interestingly, the newly organized *panzertruppen* (tank) arm suggested that the assault gun project be scrapped because it was interfering with the production of tanks. It became clear, however—much to the chagrin of the tank developers—that if no assault guns were produced their tanks would be tasked with infantry fire support in addition to their armored spearhead role. The decision was then made to proceed with the formation of the *Sturmartillerie* branch.

Throughout World War II, and despite attempts to move the assault guns into an antitank role, the *Sturmartillerie* adhered to its original purpose of supporting infantry. In addition, most of the World War II armies fielded tank destroyers that also provided fire support for the infantry. The assault gun and the tank destroyer were not technically tanks, but the need to provide armored vehicles, and tanks if necessary, to give direct fire support to the infantry was generally recognized.

There is one historical trend that pervades the vast majority of the readings on armor support for infantry: Planners have consistently underestimated the ability of tanks to maneuver in restrictive terrain. Today, the topic usually comes up when planners are contemplating what they perceive to be “an infantry war.” This perception is based on terrain, such as jungles or built-up areas, or on the restrictions imposed by the lack of deployment resources, such as those during a major amphibious operation. Even when tanks can be moved to a battle area and supported there, planners habitually either leave them out completely or employ very few.

As a recent example of this kind of thinking, most senior leaders in the U.S. Army through 1965 were convinced that tanks were not needed in Vietnam. This notion was based on studies indicating that tanks would not be able to operate in the mountains and jungles of Vietnam but would be restricted to employment in a few coastal areas. Admittedly, there was no recent experience to draw from and little doctrine on using tanks in a jun-

gle environment. Predictably, many of the first units that deployed to Vietnam went in without tanks, even if they had organic tank units. Some mechanized infantry units were even stripped of their armored personnel carriers before they were deployed.

Two years later, a new mobility study determined that tanks could operate in 61 percent of the country during the dry season and 46 percent during the wet season. After the first tank units proved they could move with and support the infantry in areas previously considered impenetrable, the Army deployed more and more armor forces to South Vietnam until armor and mechanized units represented more than a fourth of the combat battalions in the country.

The tactical tie-in between infantrymen and the tanks supporting them has been constant throughout modern military his-



tory. The tank can do just about anything the infantryman needs for it to do. It can crush a barrier within a city, or become one. It can become a stationary pillbox that can help seal off a cleared area, or stop traffic, or cover prisoners of war.

It can also punch holes in walls, push cars out of the way, clear vehicles blocking an airstrip, shoot down aircraft, pull trucks out of ditches, transport infantrymen and supplies on its back, and crush bunkers and trucks. In short, it is a versatile workhorse. The tank is not a bulldozer and all of these capabilities do detract from its primary mission, but it can still perform those tasks.

Some tanks also come equipped with searchlights, both white and infrared, and white light is great for use during peacekeeping operations, controlling crowds, looters, and roadblocks. It is also good for designating targets (especially snipers) and thus for coordinating fires.

What a tank can do for you, the infantry leader, is limited only by your imagination, tempered by the wise advice of

the tank commander. The following will give you some ideas concerning firepower, shock, mobility, observation, and protection.

A tank can effectively shoot a main gun round about 2,000 meters, and it can shoot several different rounds for different purposes. Some that are designed to pierce armor, for example, have a minimum effect on masonry. Likewise, a round that can take out a building may not be effective against other armor. Ask the tank commander, and he can tell you precisely what his ammunition can do.

The tank also carries two or three machineguns. One is coaxial, which means it lies alongside the main gun tube and shoots wherever the main gun is pointed. The other is higher on the turret, usually free swinging (and thus can fire at upper stories), but it forces the operator to expose himself to shoot.

The tank's firepower can support the infantry in many ways: It can provide antiarmor fire support and precision fire support that avoids collateral damage and that suppresses the enemy during close assaults.

The shock effect of tanks is usually described as occurring when tanks mass to hit an enemy force. But the term is relative. At times, only one tank can “shock” an enemy and turn the tide of battle. For example, in such peacekeeping operations as crowd control or suppressing snipers in urban terrain or crashing through jungle growth to root out an enemy, a single tank in support of a platoon can create enough shock to enable that platoon to gain the initiative.

Tanks were originally designed to move cross country, traversing trenches, ditches, and soggy or broken ground. The width of the tracks allow the tank's weight to be distributed, permitting it to move into places where only dismounted soldiers usually think of going. Jungle or other dense foliage, most trees, walls, obstacles, ditches, sniper fire, barbed wire—a tank can overcome all of these, but within certain limits.

For example, barbed wire can get caught up in the tracks and eventually stop a tank, and if enough trees are knocked down incorrectly, a tank will stop. A tank can move through mud, but

it can also throw a track (the track rolls off the road wheels). The point to remember is this: When in doubt, ask the tank commander what he can or cannot do.

In close terrain, teamwork between tanks and dismounted infantrymen is essential. The tank can help blast a path for the infantrymen and overwatch their advance. The infantrymen can help the tank pick its route and can give it local security.

At times it will be important for you to know just how big a tank (or other armored vehicle) is. This information is easy to find, but here are some rules of thumb to help you determine where it can "fit" and where it can't:

- Big tanks (M1A1, M60A3) weigh 60 tons and are five paces wide.
- Medium armored vehicles (M2 and M3 Bradleys) weigh half as much (20 to 30 tons) but are just as wide.
- Small armored vehicles (personnel carriers, improved TOW vehicles, tracked ambulances) are half the weight of the mediums (10 to 13 tons) and are only about half as wide (three paces).
- The M551 Sheridan falls somewhere between the medium and small categories.

Closely related to mobility is speed, and speed has two aspects. One is the vehicle's physical ability to move from point to point. The other is the speed with which armor units can mass, disperse,

and concentrate at critical points on the battlefield.

For these reasons, armor, even in small packages, is a great exploitation force that can be used to take advantage of opportunities or as a great reaction force that can roll quickly to handle threats at critical points.

Tanks can also be an aid in observation. In the matter of what a tank crew can or cannot see, there are three factors to be considered. First, just by riding in a tank, the tank commander can easily be up to 10 feet above dismounted soldiers. And with a fairly good pair of binoculars, he can see much farther out.

Second, the tank has powerful optical sights. Although the exterior lenses are somewhat susceptible to bullets and shrapnel, they are pretty reliable. The armored turret allows the crewmen inside to continue observing under almost all conditions.

Finally, the tank crew, using thermal sights and image intensifiers, can provide 24-hour observation under most weather and battlefield conditions, including smoke.

Tanks have armor protection that can defeat most of what flies around the battlefield. At the same time, though, there are enough lethal weapons aimed against them to emphasize this point: Every known tank can be defeated.

Even though armored vehicles represent state of the art technology and are

complex pieces of machinery, their greatest effect is on the attitude of the soldiers who come in contact with them. Another way of putting this is that armor is a state of mind.

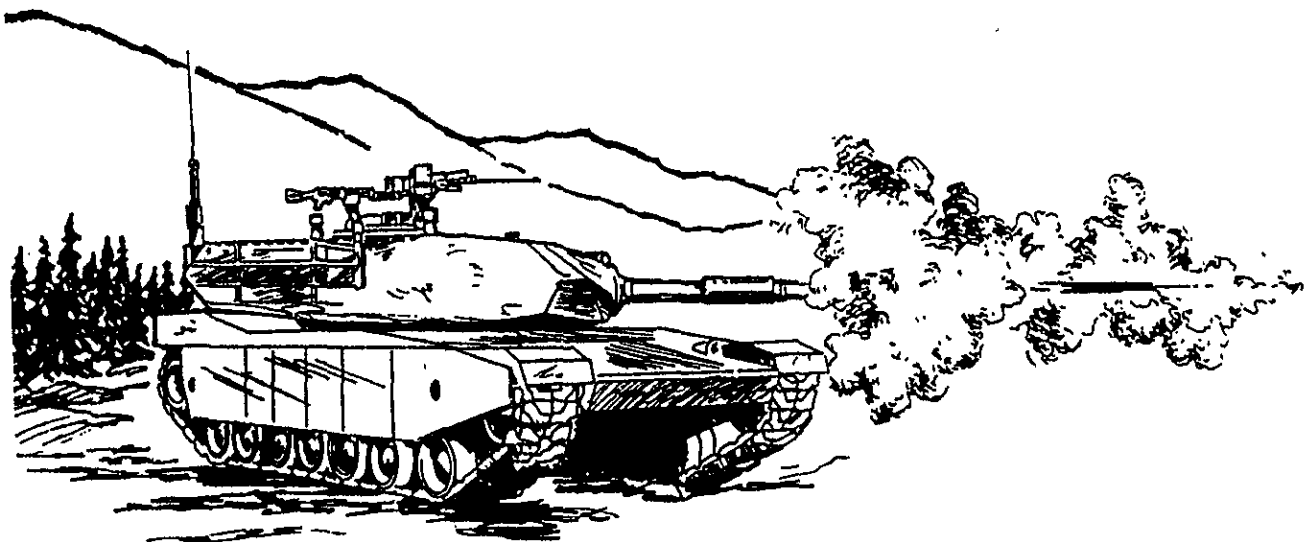
Armor leaders and crewmen are trained to think and act on the basis of their vehicles' capabilities and limitations. Because the vehicles move fast and far, the leaders must think fast and far. It is not uncommon for armor crews to carry graphics that take them across several map sheets.

Just as important is the effect of tanks on the infantryman's morale. From World War II through the recent operations in Panama, the sound of even a few tanks has been music to the infantryman's ear. Tank crews supporting infantry have always had an intense feeling of loyalty and dedication to the foot soldier.

After considering all of these things that tanks can do for you, you must also consider what they will require from you when you use them.

First, the armor crewmen who suddenly find themselves attached to your unit are going to be disoriented at first. They probably won't know the mission, the enemy situation, the friendly situation, or the radio call signs and frequencies. And they probably will not have the proper graphics.

As an infantry leader, you must think these difficulties through before you get your attached armor and develop a good



SOP that will put timely information into the hands of the crewmen and you must include them as full members of the team.

At the same time, though, you should realize that the average tank commander has been "tanking" for some time, and you can trust him. He has probably worked his way up from loader to driver and then gunner and knows his system and its capabilities well.

Consider communications carefully. It is not rare for a tank commander to have to talk to a fellow tanker, his platoon leader, the small infantry unit he's shooting for, and the higher headquarters he's attached to—all at once. And he probably has only one or two radios at most.

The key is to try to see that communications do not fail when you need them most. One of the most frustrating and dangerous things is not to be able to talk to your supporting tank element. Develop a foolproof method of contacting him, or having him contact you.

TALKING TO TANKS

How do you talk to a tank? What does your SOP say? Tankers use hand signals, radios, and external telephones (except on the M1) to communicate with elements outside their vehicles. Infantry leaders should be able to communicate using all of these. Other means include climbing on the tank to talk to the tank commander face-to-face or having him dismount and talk to you on the ground, using the tank as a cover. And there is no reason why he can't accompany you on your leader's reconnaissances.

Finally, it is not rare for today's radios to overheat, break, or fail to transmit as far as they are supposed to. The new radios now making their appearance will fix many of these problems. Although their planning ranges may be the same, they will be more reliable.

Keeping tanks supplied is the biggest problem for light infantrymen. If you're not familiar with diesel engines or armor, you'll be surprised at what it takes to keep them going. And without the proper supplies, the vehicle is useless.

The tanks need Class III supplies, usually on a daily basis. Either the tanks

have brought these supplies with them or your unit has agreed to provide them. But there is a third possibility—nobody has planned for them or checked to see that the plan is being followed. Poor planning or coordination results in dry fuel tanks and broken engines.

Suppose, for example, that you're an infantry company first sergeant and find yourself operating with a platoon of four M1 tanks. What can you expect?

If the platoon operates continuously, it will need fuel twice each day. It will probably need ammunition as well. (M551 Sheridans can probably run for one or two days.) The M1 burns almost as much fuel at idle as at full speed. After running continuously for six hours, it will be at 30 percent of its fuel capacity, assuming it was full to begin with.

The tank carries a fuel container that has a 500-gallon capacity. It can run on almost any type of fuel—diesel, kerosene, even mogas for short periods. Since it has a multifuel engine, you can get fuel almost anywhere, but for this example let's suppose your S-4 has coordinated for resupply by HEMTT (heavy expanded-mobility tactical truck). This means that he has actually coordinated for two vehicles—one cargo and one fueler.

The HEMTT fueler has a capacity of 2,500 gallons but usually carries only 2,400 gallons to allow for fuel expansion. It can pump the fuel out at the rate of 300 gallons per minute, using two nozzles at a time. Thus a four-tank M1 platoon can top off in five minutes.

The cargo HEMTT has a crane and drop sides, so it is extremely versatile. Ammunition is usually loaded right off the side of the HEMTT into the tank. Because ammunition and fuel resupply can take place simultaneously, the five-minute estimate for the platoon is still good.

But what else do you need to consider?

First, what refueling and rearming technique will you use? Based on METT-T, you must decide whether to bring the supply vehicles (logistical package, or LOGPACK) to the platoon or to send the platoon back to the supply point (which is most likely). Bringing the LOGPACK forward implies good roads, a secure sector, and no need for stealth. Sending the tanks back implies a need for security,

good roads, tight command and control, and good map reading.

Second, the area you choose for resupply must be secure, and this may require support from the infantrymen. The tank crew will handle the refueling and the reloading of ammunition, but they may need ground guides, local security, and someone to mark the area, especially at night.

Third, consider the time required. The greatest time is spent in moving to the supply point, pulling up to the HEMTT, grounding the HEMTT, and opening the containers. Compared to all that, the actual refueling is fast.

Finally, don't forget the package products, parts, special tools, food, and water that the tank crews will also require. Be sure to tie these into the LOGPACK. Package products (oils and lubricants) usually come with the fuel and ammunition, but the tank commander may need special quantities or types and may need your "horsepower" as a first sergeant to ensure that he gets enough.

Sometimes even the best plans fail. At these times, the initiative of the U.S. soldier is essential. A good tanker can scrounge what he needs almost anywhere. But this is not a method, only a quick fix. There is no substitute for a reasonable and meticulously prepared logistical plan.

PMCS TIME

Armored vehicle crewmen must be given enough time to perform regular preventive maintenance checks and services (PMCS). The longer the vehicles run, the more checks they need. In other words, on top of the time required to feed the tank its grease, oil, fuel, and ammunition, it needs time to be "stroked." It may need parts, special tools, manuals, experts, or all of these.

If it breaks, you will have to fix it, blow it in place, or move it. And how do you move a tank? Do you know what type of tow bars, recovery vehicles, winches, cables, or hook-ups are required? What about security? Someone has to guard the broken vehicle, the repair vehicles, and the supplies, and do

it so that incoming rounds don't take all of you out. It's a tough problem.

Time is usually the biggest constraint. ~~If armor is used as a reaction force, or to constantly suppress and engage the enemy, breaking it away for maintenance is hard.~~ But you have to listen to the tank commander when he tells you, for example, that an engine is about to fail. ~~If you think guarding a tank while the crew pulls maintenance is a problem, consider how much more of a problem you'll have when the engine blows. The cost is unavoidable. The best you can do is manage when you're going to pay that cost.~~

Security is a simple equation—and a two-way street. The closer the terrain, the more susceptible an armored vehicle ~~is to being ambushed.~~ It needs protection, especially to its flanks and rear. But the closer the terrain, the more opportunity the enemy has to slow down the infantry, and the more the infantry needs ~~the tank's firepower to blast its way through and the tank's armor to protect its movement.~~

How will the protecting element move? Are you willing to slow the tank to the speed of dismounted infantrymen? Where will the tank be in relation to its supported element? These are questions best answered through the development of simple drills and easily communicated SOPs.

When it comes to target identification and designation and fire control, there are a number of things you need to consider.

The tank crews' ability to observe tar-

gets decreases the more they are forced to seal their hatches. Once the hatches are closed, the crews have only several vision blocks to see through. Their vision upward (toward the upper floors of buildings) is severely restricted, and they must rely on other vehicles, or on ground observers, to direct their fires.

In this situation, does your unit have ~~an SOP with a simple, sure way of "talking" the rounds onto a target?~~ What about at night? How is your supply of chemical lights? How do you mark vehicles for thermal identification? How do you prevent fratricide?

The standardization of procedures can come only through practice. Do you have an armor element supporting you in a habitual training relationship? Do you know the element commander's first name? Do you understand each other's techniques and needs?

What if you don't have a tank element ~~to train with regularly?~~ ~~The best answer is that you treat your cooperation with tanks like a science instead of an art.~~ Approach the problem methodically—read manuals, watch films, discuss it with your leaders, wargame it on sandtables with micro-armor, use blackboards, look up historical writings from World War II, Korea, and Vietnam, study drills from other units, request assistance from the Armor or Infantry Schools, visualize and discuss their use during urban combat training, study U.S. Marine Corps techniques, and use other vehicles in training as a substitute for tanks.

Synchronization and teamwork is where the art comes in. You'll develop into a combined arms team "artist" as you practice, practice, practice. But if you can't practice, do the next best thing—study the problem and master the principles and the theory.

History validates the need for infantry to be supported by tanks, especially when ~~assaulting a strong enemy position.~~ This requirement exists even if the terrain may appear to restrict the use of armor. Furthermore, even though there are no apparent transportation assets for deployment, planners should attempt to locate some and to deploy as many supporting tanks as possible—preferably a slice for each infantry battalion. The combined arms principle is—and has always been—the key to battlefield success.

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Effective Military Leadership

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Some people are effective leaders. Some are not. The personal characteristics that make the difference have been seriously considered since the beginning

of time. Yet, to date, no one seems to have identified the leader formula with any assurance.

To me, a leader is a leader, regardless

of the walk of life in which he operates. There are shades of difference, but the essential skills appear to be very similar.

When we talk about military leaders